

REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application. Claims 1-2, 5-22 and 26-32 are currently pending in this application. Claims 12-22 and 26-31 remain withdrawn from further consideration. No new matter has been added by way of the present amendment. The amendments to claim 1 are supported by the Specification at, for example, par. [0021], as well as Figs 1-4. The amendment to claim 2 is supported by par. [0021] in the Specification. Accordingly, no new matter has been added.

In view of the amendments and remarks herein, Applicants respectfully request that the Examiner withdraw all outstanding rejections and allow the currently pending claims.

Issues under 35 U.S.C. 103(a)

Claims 1, 2, 5, 6, 9 and 11 stand rejected under 35 U.S.C. 103(a) as obvious over previously cited Chino in view of Odemura (JP 2001-188343) ("Odemura"). Additionally, claim 7 stands rejected as obvious over Chino in view of Odemura and Ishihara et al. (U.S. 2002/0012080) ("Ishihara"). Claims 8 and 10 stand rejected as obvious over Chino in view of Odemura and in further view of Tanaka et al. (U.S. 6,933,180) ("Tanaka"). Claim 32 is rejected as obvious over Chino in view of Odemura and Tanaka and in further view of Sakamoto et al. (U.S. Patent 2003/0095217) ("Sakamoto"). Applicants respectfully traverse.

The Examiner asserts that Chino discloses an active matrix display device having a plurality of thin film transistors disposed in a matrix on an insulating substrate, and wiring connected to these thin film transistors, wherein the active matrix display device comprises a flattening layer surrounding wiring, and wherein a surface of the wiring and a surface of the flattening layer form substantially the same plane. The Examiner further asserts that Chino

discloses that the active matrix display device additionally comprises an interlayer insulating film on the plane formed by the surface of the wiring and the surface of the flattening layer.

The Examiner acknowledges that Chino fails to disclose the material for the flattening layer. The Examiner relies on Odemura, and asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the flattening layer from the proposed resin composition, "to benefit from its known advantages for display use, such as high transparency, flatness, heat resistance, and chemical resistance."

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). "[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability." *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ 2d 1385 (U.S. 2007). There must be a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *Id.* The Supreme Court of the United States has recently held that the "teaching, suggestion, motivation test" is a valid test for obviousness, albeit one which cannot be too rigidly applied. *Id.* "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.* (quoting *In re Kuhn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

As previously discussed, one of the novel features of the presently claimed active matrix display device is that a surface of the wiring and a surface of the flattening layer form

substantially the same plane. As described in claim 1, the claimed active matrix display device comprises an interlayer insulating film formed on the plane formed by the surface of the wiring and the surface of the flattening layer, and a pixel electrode formed on the interlayer insulating film. Since the active matrix display device according to this invention has a flat structure by virtue of its novel characteristics, it is possible to obtain an excellent display with less degradation of display elements, and it is further possible to enlarge the pixel electrode (see paragraph [0032] in the original Specification).

Moreover, in the active matrix display device according to this invention, the flattening layer is formed of a photosensitive resin composition (see, e.g., claim 1). Since the photosensitive resin composition is used in forming the flattening layer (see reference numerals 30 and 32 in Fig. 1), it is possible to apply the processes described in paragraphs [0050], [0051], and [0052] of the original specification (and illustrated in Fig. 1 and Fig. 3 (d)) to form the flattening layer (30 and 32) and the wiring. As a result, when an insulating substrate (10) having a flat surface is used (e.g., without forming concave portions on the flat surface of the substrate), it is possible to obtain a structure in which the surface of the wiring and the surface of the flattening layer (30 and 32) form substantially the same plane (see paragraph [0053] in the original specification). As defined in claim 1, "substantially the same plane" means that a level difference between the surface of the wiring and the surface of the flattening layer is 1 μ m or less. Chino, alone or in combination with the secondary references cited by the Examiner, fails to teach or suggest an active matrix display device as claimed.

Chino discloses an electro-optical device comprising a substrate 2, a first interlayer insulating film 9, a data line 37, a second interlayer insulating film 59, and a picture electrode 20. In the electro-optical device illustrated in Fig. 2 of Chino, a surface of the data line 37 and a

surface of the first interlayer insulating film 9 may form substantially the same plane. The second interlayer insulating film 59 and the pixel electrode 20 are sequentially formed on the plane formed by the surface of the data line 37 and the surface of the first interlayer insulating film 9.

However, the substrate 2 of Chino does not have a flat surface. Rather, the substrate 2 of Chino comprises concave portions 10, 11, and 12, corresponding to the positions of the switching element 5, the lower electrode 7 and the first interlayer insulating film 9, as described in paragraph [0051] of Chino. As described in claim 1 of Chino, the use of a substrate with concave portions is essential. As such, it is necessary to carry out a step of etching the substrate 2 so as to form the concave portions 10, 11, and 12, as described in paragraph [0064] of Chino and illustrated in Figs. 3(a), 3(b), and 3(c). As a result, productivity of the electro-optical device of Chino is low as compared with the active matrix display device according to this invention.

Furthermore, Chino describes that, after depositing the first interlayer insulating film 9, contact holes 40, 42, 45 and 46 are formed and, subsequently, a conductive film made of a metal film is formed by a sputtering method and then patterned so as to form the data line 37, the drain electrode 41, the common feeder wire 8 and a lower portion 57 of the relay electrode 49 (see paragraph [0068], lines 12-19, Fig. 3(g) and Fig. 4(h) in Chino). Thus, after contact holes 40, 42, 45 and 46 are formed in the insulating film 9, a metal film is formed on the entire surface of the insulating film 9 by sputtering, and is then patterned into wiring (see data line 37, drain electrode 41, common feeder wire 8, and lower portion 57 of the relay electrode 49 in Fig. 4(h)). However, when the insulating film 9 and the wiring (37, 41, 8, or 57) are formed by using the above-mentioned process disclosed by Chino, it is difficult to achieve a level difference between the surface of the wiring (37, 41, 8, or 57) and the surface of the insulating film 9 (corresponding

to the flattening layer) of 1 μ m or less. This is because, in order to provide the wiring (37, 41, 8, or 57) and expose the surface of the insulating film 9 (the flattening layer), it is necessary to remove portions of the metal film. However, it is extremely difficult to remove only unnecessary portions of the metal film formed by sputtering on the entire surface of the insulating film 9 with the contact holes 40, 42, 45 and 46 so that a level difference between the surface of the wiring (37, 41, 8, or 57) and the surface of the insulating film 9 (the flattening layer) is not caused. As such, it would be very difficult to achieve a level difference between the surface of the wiring (37, 41, 8, or 57) and the surface of the insulating film 9 (corresponding to the flattening layer) in Chino of 1 μ m or less. The skilled artisan would have absolutely no motivation to attempt so.

Evidently, Chino fails to teach or suggest an active matrix display device as claimed. The secondary references cited by the Examiner fail to cure the deficiencies of Chino. The Examiner takes the position that "one would have been motivated to form the flattening layer from the resin composition to benefit from its known advantages for display use, such as high transparency, flatness, heat resistance, and chemical resistance" (emphasis added).

However, Applicants note that Odemura only compares properties (such as transparency, flatness, heat resistance, and chemical resistance) of photosensitive resin compositions of inventive embodiments with those of photosensitive resin compositions of comparative examples. When comparing these compositions, Odemura selects "a photosensitive resin composition containing an alkali-soluble alicyclic olefin polymer obtained by modifying an alicyclic olefin polymer with a compound having an acid derivative type residue such as an amido or carboxyl group, a crosslinking agent such as an alkoxymethylated melamine or an alkoxymethylated glycol ueryl and a photo-acid generating agent such as a halogen-containing triazine compound" as the preferred photosensitive resin composition. Thus, Odemura does not

in any way teach or suggest that the photosensitive resin composition would exhibit any of the characteristics described above if it was used as a first interlayer insulating film. Moreover, Odemura neither discloses nor suggests the claimed limitations of a surface of wiring and a surface of a flattening layer forming substantially the same plane (e.g., a level difference between the surface of said wiring and the surface of said flattening layer being 1µm or less), as presently claimed.

In view of the above, reconsideration and withdrawal of this rejection are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and objections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Vanessa Perez-Ramos, Registration No. 61158 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

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